

QMaster-Senior Automatic Temperature Control

User Manual

The QMaster-Senior is a PID controlled Automatic Temperature Controller designed to be used to set and maintain temperature in a Barbecue Smoker using charcoal or wood as a heat source. The controller has the capability of sensing both meat and pit temperature and then based on user settings, operates the electric fan to stoke the fire to increase temperature.

There are several features that make the QMaster-Senior unique when compared to competitors models. First, this controller features 4 step modes that allow you to control temperature of the pit for a set period of time or until a certain meat temperature is reached. You can then change to a different pit temperature and/or meat temperature for your specified period of time, etc. Second, the fan output is controlled via PID, so it is variable based upon data being fed back to the controller. Competitive models simply turn the fan on or off based on temperature of the pit. Additionally, you can set the maximum output of the fan in the initial set up. This is an easy way to get the desired response from the system to fit the size of your BBQ/smoker.

The basic logic is that the fan will be controlled by pit temperature first. Once the meat temperature reaches the target temperature, meat temperature will take over control of the fan operation.



Items Included:

- QMaster-Senior Automatic Temperature Controller
- 100-240VAC to 12VDC 1A power supply
- 1 – Pit Temperature Probe
- 1 – Meat Temperature Probe
- 1 – 10CFM Blower Fan or optional 50CFM Blower Fan

QMaster-Senior Controller Interface:

On the side of the unit:

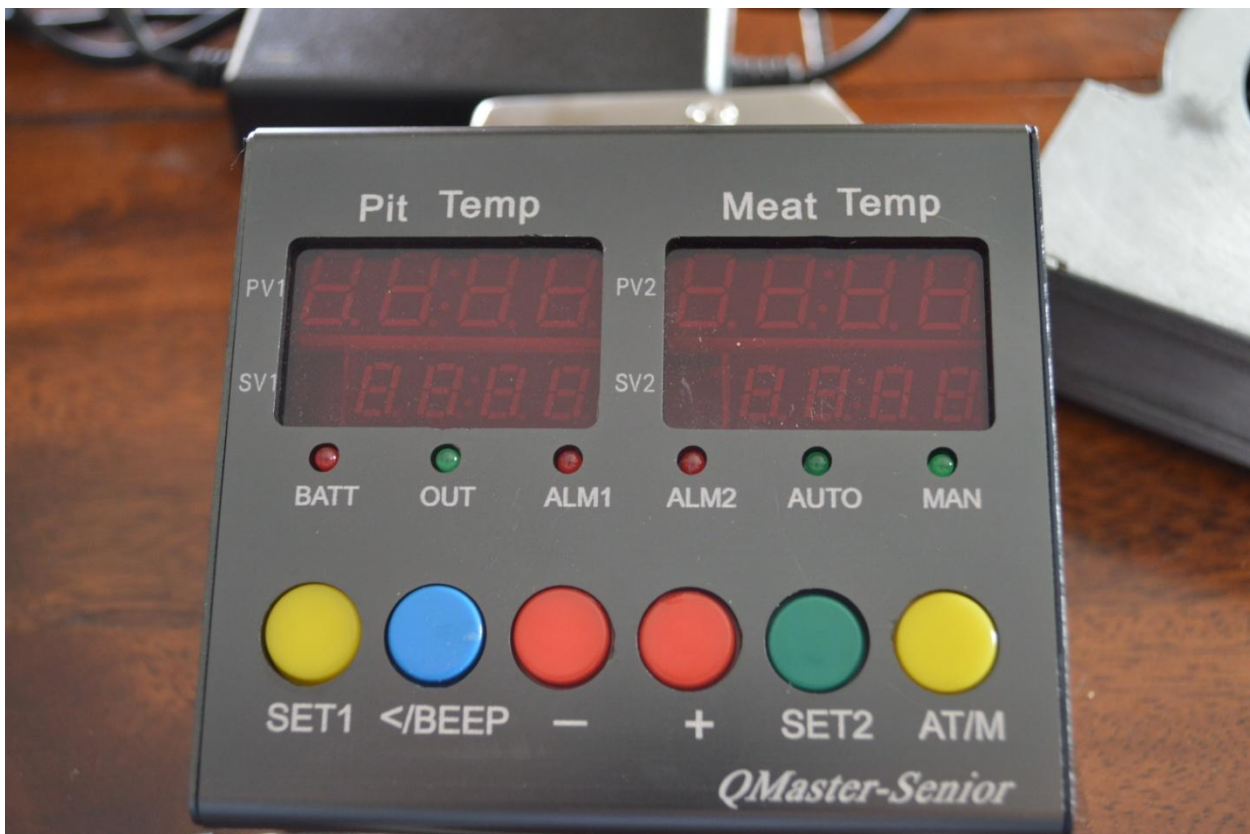
Power Switch

12VDC power in –

Motor – This is the Output for the fan lead

Pit – Port for the Pit Temperature Probe

Meat – Port for the Meat Temperature Probe



Control Panel Displays en lights:

Information	Definition	Feedback
PV1	Pit Temperature	Measured Pit Temperature Data
SV1	Pit Temperature	Target Pit Temperature
PV2	Meat Temperature	Measured Meat Temperature Data
SV2	Meat Temperature	Target Meat Temperature
BATT	Battery Voltage Indicator	Low Battery Voltage Detected
OUT	Output Indicator	Fan Is Being Operated By Controller
ALM1	Low Temperature Alarm	Pit Temperature is Below Target Temperature
ALM2	High Temperature Alarm	Pit Temperature is Above Target Temperature
AUTO	Automatic Operation Indicator	Control is Operating in Automatic Mode
MAN	Manual Operation Indicator	Control is Operating in Manual Mode

Control Panel Button Information:

Button	Operation	Comments
SET1	Set Pit Temperature	Also Scrolls Between Different Parameters of Each Pit Temperature Program Step; Saves Values Set with SET2 Button
</BEEP	Alarm Sound On/Off Scroll Left for Temp/ Time Values	
-	Decrease Value	
+	Increase Value	
SET2	Set Meat Temperature	Also Scrolls Between Different Parameters of Each Meat Temperature Program Step; Saves Values Set with SET1 Button
AT/M	Toggle Between Automatic and Manual Modes	

Unit Operation:

Setting Initial Parameters for Controller – Temperature

This unit will display either Celsius or Fahrenheit temperature units. To adjust, press and hold SET1 for 3 seconds until F-C is displayed in the PV1 window. Use the +/- buttons to toggle between F and C. Press SET2 to save changes.

Fan Speed

The QMaster-Senior maximum fan speed (HdC) is set at around 90%. The setting is checked before packing. You can change this parameter to optimize for your BBQ/smoker. Feel free to experiment.

To change the maximum fan speed, press and hold SET1 for 3 seconds until F-C is displayed in the PV1 window. Press SET1 again and it will display HdC. Use the +/- buttons to adjust the value to whatever percentage of full output you want. Press SET2 to save adjustments.

Optional Adjustments

Since this unit is a PID type controller, you have the ability to adjust the other parameters. The QMaster-Senior has been optimized to control your smoker from the factory. It is advised not to change these logic parameters. To access the menu:

Press and hold SET1 for 9 seconds until P is displayed in the PV1 Window.

Parameter	Default Value	Comments
P	5 Seconds	Proportional Value
I	0 Seconds	Integral Value
D	2 Seconds	Derivative Value
Ar	80	
T	0005	
PB1	0000	Calibration of Pit Probe
PB2	0000	Calibration of Meat Probe
UdC	7 or 180 (depending on supplied fan)	Minimum Fan Output, must be greater than 0
LcK	0000	Mode Lock Default

Restoring Default Settings

In the event that you change the settings and the controller does not perform optimally, you can easily reset the parameters to the default settings. To restore the default settings, turn off power for minimum of 3 seconds. Press and hold </BEEP. Turn power switch on while holding the </BEEP button. The display will show 8888 then disappear. Your settings will now be at the original values.

Setting Parameters for Pit Temperature –

To set up your targets for Pit Temperature, begin by pressing SET1. In the PV1 window, the QMaster-Senior will begin by displaying parameters for the first of four possible program steps. Here are the parameters:

SC1 – Target Pit Temperature

TC1 – Time (in minutes) at Target Pit Temperature (for indefinite time, set to 9999)

AL1 – Low Pit Temperature measured for which alarm will sound

AH1 – High Pit Temperature measured for which alarm will sound

Setting Parameters for Meat Temperature –

To set up your targets for Meat Temperature, begin by pressing SET2. In the PV2 window, the QMaster-Senior will begin by displaying P1, the desired Meat Core Temperature. By pressing SET2 again, the time (T) to hold this P1 can be set in minutes. The next press will let you set P2. This is the “hold” temperature you like your meat to stay at next. P3 is the last settable temperature, and is the maximum pit temp during the P1 and P2 stages. So:

P1 – Target Meat Temperature

T – Time in minutes at Target Meat Temp

P2 – Desired “Hold” (pit) temperature after P1 stage

P3 – Maximum Pit temperature during P1 and P2 stages

Set-Up Example:

Let's say that you want to smoke a pork shoulder for pulled pork. You decide that you want to smoke the shoulder at 250 degrees F, and you want to keep the temperature within 25 degrees of this target. Here is how to set up QMaster-Senior:

Begin by pressing SET1. In the PV1 window, the value SC1 is displayed. Use the +/- buttons to adjust the first digit to 0.

Press the </BEEP button to move the cursor left and adjust to 5.

Press the </BEEP button to move the cursor left and adjust to 2.

Press SET1 again to display TC1. Adjust to 9999 (because we want to maintain 250 for an indefinite amount of time).

Press SET1 to display AL1. Adjust to 225 because that is the temperature where we want to be alerted that the temperature is too low.

Press SET1 again to display AH1. Adjust value to 275 because this is the temperature where we want to be alerted that the temperature is too high.

Press SET2 to save your parameters.

If you press SET1 again, you will begin scrolling through the next step parameters (SC2, TC2, AL2, AH2). We don't want to use this step of the program, so set SC2 to 0, and that program and following programs will be ignored.

Let's say that we want our pork shoulder to reach 195 degrees F. We would adjust the QMaster-Senior like this to achieve our targeted meat temperature:

Press SET2. In the PV2 window P1 is displayed. Adjust the values to read 195. Press SET2 again. T1 is displayed. Adjust value to 9999, as this will hold meat at that temperature indefinitely.

After you are done setting parameters, press the AT/M button twice to display the targets you set.

Setting Maximum Pit Temperature –

The QMaster-Senior is designed to manage the pit temperature once the target meat temperature is reached by limiting maximum pit temperature to keep you from accidentally over-tempering your meat. Once the target meat temperature is reached, the controller will automatically give priority to the meat temperature and keep the pit temperature at a pre-determined set value.

To set maximum pit temperature, press SET2 and scroll through the parameters until you reach P3. Use the +/- buttons to adjust to your desired maximum pit temperature. Press SET1 to save your adjustments.

Loss of Power –

Your QMaster-Senior is designed so that in the event of a loss of power, your programmed settings will remain. As soon as power is restored, the controller will resume the assigned program.

Manual Operation –

You can choose to operate your control in manual mode by pressing the AT/M button. The indicator lights on the front display show either manual or automatic operation.